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ABSTRACT

This booklet summarizes the recent debate over the regressivity or progressivity of the property tax and presents some evidence on how the property tax burden is distributed among income classes. Section 1 discusses property tax incidence under both the conventional and new economic views. Discussed specifically are the conditions under which either landlords or businesses can shift property tax liabilities to renters and consumers. The section ends with a short discussion of studies of property tax incidence based on both the conventional and new views. Section 2 presents the results of recent studies of property tax incidence under alternative assumptions of incidence in four states--Connecticut, Minnesota, Missouri, and South Dakota. Section 3 presents a short summary of the study and discusses its implications for future state property tax policies. The study's primary finding was that the property tax was regressive for low-income families under both the conventional and new views of the property tax. (Author/JG)

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THE REGRESSIVITY OF THE PROPERTY TAX

The Incidence of the Property Tax Under Alternative Assumptions of Incidence in Four States — Connecticut, Minnesota, Missouri and South Dakota

U S DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

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Report No. F76-4

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FOREWORD

This publication is one of a series of school finance policy studies that the National Institute of Education (NIE/DHEW) is supporting at the ECS Education Finance Center. It draws upon the center's technical assistance activities with state legislatures and governors, as well as its demonstrated knowledge in this important field. NIE's sponsorship of this work is based on our conviction that the major burden for school finance reform now falls on the nation's legislators and governors and that "goal oriented" research of this kind will lead to a more informed and productive debate on the subject of school finance reform.

The emergence of this key role for state legislators and governors is the product of a series of important and far reaching court decisions. Beginning with the Serrano decision in California, a number of state courts have directed state legislators and governors to reconstruct the ways in which education resources are raised and distributed. In light of this state focus, it is particularly appropriate that ECS undertake research of this kind.

We at NIE hope this publication will serve the needs of legislators, governors, state and local education officials and interested citizens and thereby assist in the development and implementation of more equitable and effective systems of school finance.

Denis P. Doyle
Chief, School Finance and Organization
National Institute of Education

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INTRODUCTION

On a nationwide basis, property taxes account for around 15 percent of total federal, state and local tax revenues. But for school districts nearly 100 percent of their locally raised revenues come from property taxes. In comparison with all government sources of revenue the property tax accounts for close to 50 percent of public school revenues. Finally, schools receive around 60 percent of total property taxes raised in the nation.[1]

Thus, a discussion of property tax incidence and burden is to a great extent a discussion of the burden distribution for financing schools. Or taking another viewpoint, any discussion of the distribution of the burden for financing public schools in the United States must consider at the top of the list the incidence and burden distribution of the real and personal property tax.

This booklet summarizes the recent debate and some evidence on how the burden of the property tax is distributed among income classes on the average and for selected states.

For many years the conventional wisdom among state legislators and most public finance scholars has been that the burden of the property tax is regressive. In other words, most state policy makers and professional economists believed that lower-income households paid out larger percentages of their incomes for property taxes than did higher-income households. These beliefs, moreover, were supported firmly by nearly all the research on property tax incidence. Whether based on national data or data from a particular state, the research results were clear: the incidence of the property tax was regressive, especially the residential component of the tax.[2]

In the past few years, however, a new view of the incidence of the property tax has emerged. To date, the new view has been discussed primarily among a group of public finance scholars, but the new view is beginning to be expressed in public policy studies on issues related to the incidence of the property tax. The new view is based on some recent advances in economic theory and argues that the property tax,

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[1] *Financing Schools and Property Tax Relief–A State Responsibility* (Washington, D.C.: Advisory Commission on Intergovernmental Relations, 1973), pp. 15-18.

[2] For a summary of the conventional viewpoint, see Dick Netzer, *Economics of the Property Tax* (Washington, D.C.: The Brookings Institution, 1966) and, more recently, Dick Netzer, "The Incidence of the Property Tax Revisited," *National Tax Journal*, 26 (December 1973), pp. 515-36.

in the main, is progressive in its incidence.[3]

The new view and its conclusions regarding the incidence of the property tax are not simple modifications of the conventional view. The new view concludes quite strongly that the property tax is primarily progressive, not regressive, in its incidence. Clearly, the new view, if valid, has important implications for public policies toward the property tax. For example, state-financed "circuit breaker" programs of property tax relief for the elderly or all low-income groups have been developed on the assumption of property tax regressivity. If the property tax is not regressive, both the rationale for and design of circuit breaker programs become suspect. In addition, if the property tax is progressive rather than regressive in its incidence, the local tax foundation of school finance may not be as inequitable as is often claimed.

The purpose of this booklet is to summarize some empirical research on the incidence of the property tax in four states—Connecticut, Minnesota, Missouri and South Dakota. Studies in these states investigated property tax incidence under alternative assumptions, reflecting the perspectives of both the conventional and new views. The results in all four states were that **the property tax was regressive for low-income families under both the conventional and new views of the property tax.** Although the magnitude of the regressivity was less under the new as compared to the conventional view, significant regressivity nevertheless persisted in the low-income ranges. The finding of property tax regressivity in these four state studies is important for state policy makers who are attempting to continue the development of progressive state policies with respect to the property tax.

The remainder of this booklet is divided into two major sections. The first section discusses property tax incidence under both the conventional and new economic views. Discussed specifically are the conditions under which either landlords or businesses can shift property tax liabilities to renters and consumers. The section ends with a short discussion of the studies of property tax incidence based on both the conventional and new views. Section II presents the results of recent studies of property tax incidence under alternative assumptions of incidence in four states—Connecticut, Minnesota, Missouri and South Dakota. The booklet ends with a short summary and implications for future state property tax policies.

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[3] For a summary of the new viewpoint see Henry Aaron, *Who Pays the Property Tax?* (Washington, D.C.: The Brookings Institution, 1975) and Peter Mieszkowski, "The Property Tax: An Excise Tax or a Profits Tax?" *Journal of Public Economics,* 1 (April 1972), pp. 73-96.

I. PROPERTY TAX INCIDENCE UNDER THE CONVENTIONAL AND NEW VIEWS

Critical to an understanding of the incidence of the property tax or any tax is the concept of tax shifting. There is no disagreement over the actual payment of property taxes. All owners of property that is subject to property taxation must pay to the proper government the property taxes levied against the property. In short, property tax liabilities are paid directly by property owners. But under certain conditions property owners may shift the burden of the tax to some other party. For example, although store owners are legally liable for remitting the sales tax to the state or local government, in most instances analysts agree that it is the consumer of the product who actually bears the burden of the tax. Likewise, while landlords are legally responsible for paying the property tax on their properties, in some cases they are able to raise their rents to cover all or part of any increase in taxes and, thus, shift the burden of the property tax to renters. In the following discussions and in the research results reported, the focus is on the parties who actually bear the burden of the property tax, not on the parties who are legally required to pay the tax.

The Conventional View of Property Tax Incidence

Under the conventional view, the property tax is considered a non-uniform tax, both nationally and within a state. It is analyzed, therefore, within a framework that focuses on the impact of property taxes on *users* rather than *owners* of property subject to the tax. In determining the incidence of the property tax, it is divided into two components: the component of the tax on land and the component of the tax on improvements (such as houses, stores or businesses) that are built on the land.

The impact of the land portion of the property tax is essentially the same under both the conventional and new views. Both views make the assumption that land is in fixed supply, i.e., that the amount of land is a given and cannot be changed. It can be demonstrated that the price of a commodity that is fixed in supply is the same with or without a tax. There is virtually no way landowners can shift the tax to some other party. Thus, the property tax on land falls exclusively on the owners of the land. Since the ownership of land is concentrated more in the upper-income brackets, this component of the property tax is rather progressive in its incidence under either view.

The burden of the property tax on homeowners for that part of the property tax that falls on owned homes also is essentially the same whether the homeowner is viewed as a capital owner or as a consumer

of housing services. In either case, that part of the property tax that falls on owned homes is borne by the owner under either view.

The difference between the two views of property tax incidence occurs primarily in the view of the burden of that component of the property tax that falls on rented residential structures and on nonresidential structures (such as stores, factories, warehouses). Under the conventional view, it is assumed that this component of the tax is shifted to final consumers of the goods and services produced by the taxed structures: renters in the case of rented residences and consumers in the case of business structures.

How is the tax shifted? To illustrate the way the shift occurs, consider an increase in property taxes; the reasoning for a given level of taxes is analogous. Take the case of a landlord who, before a tax increase, is earning what is considered to be an adequate rate of return on his investment. When the property tax increase occurs, the landlord experiences a decrease in his net rate of return if he assumes the full burden of the tax increase. The landlord would attempt either of two things. He could shift some of his capital investment away from rental structures, generally a long-run phenomenon. In this case the supply of rental structures would decrease, which would in turn increase the rents. As the market adjusts to a new equilibrium point, the property tax increase would be shifted to at least some extent. Alternatively, the landlord could either increase rents or decrease the maintenance of his property; the result in both cases being a lowering of quality for a given price. Either of these latter possibilities would encourage renters to consume less rented property or the same amount of lower-quality rented property. The rent increase or the decrease in maintenance would occur until the landlord felt he again was earning an adequate rate of return and the renter had adjusted his consumption of rental property. Under both cases, the increase in the property tax, at least that part on the structure, is shifted to the renter. The more inelastic the demand or elastic the supply of structures, the greater the extent of shifting. It often is assumed that the long-run supply is quite elastic so that nearly full shifting takes place. A similar result occurs for an increase in the property tax on nonresidential structures; over the long run and even in the short run, the tax is shifted to the users of the products produced by the taxed structure: consumers.

In making empirical estimates of the property tax burden under the conventional view, the tax usually is divided into four basic components:

1. The land component.
2. The owner-occupied residential component.
3. The rented residential component.
4. The nonresidential component.

The land component is assumed to fall on landowners as indicated by

Table 1

Statewide Incidence of the Property Tax Under the Conventional View

Minnesota, 1954		Michigan, 1956		Wisconsin, 1956	
Income Class	Property Tax Burden	Income Class	Property Tax Burden	Income Class	Property Tax Burden
Under $1000	5.1%	Under $2000	14.5%	Under $1000	5.0%
$1000-$2000	2.2	$2000-$3000	2.7	$1000-$2000	5.4
$2000-$3000	1.4	$3000-$4000	2.0	$2000-$3000	3.4
$3000-$4000	1.1	$4000-$5000	1.6	$3000-$4000	2.8
$4000-$5000	0.9	$5000-$7000	1.5	$4000-$5000	2.5
$5000-$6000	0.8	$7000-$10,000	1.2	$5000-$6000	2.2
$6000-$7500	0.7	Over $10,000	1.0	$6000-$7500	2.2
$7500-$10,000	0.6			$7500-$10,000	2.0
Over $10,000	0.6			Over $10,000	1.5
Average	0.9%	Average	1.5%	Average	2.5%

Source: Richard Musgrave and Darwin Daicoff, "Who Pays the Michigan Taxes?" *Michigan Tax Study Papers*, Michigan Tax Study Committee (Lansing, Mich.: The Committee, 1958), p. 138; University of Wisconsin Tax Study Committee, *Wisconsin's State and Local Tax Burden* (Madison: University of Wisconsin, 1959); O.H. Brownlee, *Estimated Distribution of Minnesota Taxes and Public Expenditure Benefits* (Minneapolis: University of Minnesota Press, 1960); Appendix, pp. 57-58.

landownership by income class, income from rents by income class or income from all capital by income class. The owner-occupied residential component is assumed to fall on homeowners and is distributed according to housing consumption by income class. The rental residential component is assumed to fall on renters and is distributed according to rent paid by income class. Finally, the nonresidential component is assumed to fall on all consumers and is allocated according to general consumption by income class.

Numerous studies of property tax incidence based on the above assumptions have been conducted. Table 1 gives the results of three studies investigating the incidence within specific states: Michigan, Minnesota and Wisconsin. Table 2 gives the results of four studies investigating nationwide incidence. The data in both tables show severe regressivity over all income classes.[4]

Criticisms of the Conventional View

There are two criticisms of the conventional view wholly apart from the basic criticism that the conventional view utilizes an analytic framework that is fundamentally inappropriate. The two criticisms are that a longer-term average-income measure, perhaps even lifetime income, should be used rather than annual income and that the shifting of property taxes on rental property can occur only in

[4] In the studies, annual income is measured somewhat differently in some instances. In general a fairly broad measure that includes various types of government transfer payments and realized capital gains is utilized.

Table 2

Nationwide Incidence of the Property Tax Under the Conventional View

Dick Netzer, 1957		Joseph Pechman and Benjamin Okner, 1966		Richard and Peggy Musgrave, 1968		Advisory Commission on Intergovernmental Relations, 1970	
Money Income	Total Property Tax Burden	Total Family Income	Total Property Tax Burden	Total Family Income	Total Property Tax Burden	Total Family Income	Residential Property Tax Burden
Under $2000	7.3%	Under $3000	6.5%	Under $4000	6.7%	Under $2000	16.6%
$2000-$3000	5.0	$3000-$5000	4.8	$4000-$5700	5.7	$2000-$3000	9.7
$3000-$4000	4.6	$5000-$10,000	3.6	$5700-$7900	4.7	$3000-$4000	7.7
$4000-$5000	4.8	$10,000-$15,000	3.2	$7900-$10,400	4.3	$4000-$5000	6.4
$5000-$7000	3.9	$15,000-$20,000	3.2	$10,400-$12,500	4.0	$5000-$6000	5.5
$7000-$10,000	3.6	$20,000-$25,000	3.1	$12,500-$17,500	3.7	$6000-$7000	4.7
$10,000-$15,000	4.0	$25,000-$30,000	3.1	$17,500-$22,600	3.3	$7000-$10,000	4.2
Over $15,000	3.3	$30,000-$50,000	3.0	$22,600-$35,500	3.0	$10,000-$15,000	3.7
		$50,000-$100,000	2.8	$35,500-$92,000	2.9	$15,000-$25,000	3.3
		$100,000-$500,000	2.4	Over $92,000	3.3	Over $25,000	2.9
		$500,000-$1,000,000	1.7				
		Over $1,000,000	0.8				
Average	4.6%	Average	3.4%	Average	3.9%	Average	4.9%

Source: Advisory Commission on Intergovernmental Relations (ACIR), *Financing Schools and Property Tax Relief* (Washington, D.C.: ACIR, 1973), p. 36; Richard and Peggy Musgrave, *Public Finance in Theory and Practice*, 2nd edition (New York: McGraw-Hill, 1976), p. 391; Dick Netzer, *Economics and the Property Tax* (Washington, D.C.: The Brookings Institution, 1966), pp. 45 and 55; and Joseph Pechman and Benjamin Okner, *Who Bears the Tax Burden?* (Washington, D.C.: The Brookings Institution, 1974), p. 59.

special economic conditions and may not occur to the degree assumed in the past.

Lifetime versus annual income. The property tax studies in Tables 1 and 2 all used an annual-income measure. Critics of the conventional view argue that housing expenditures are not based on annual income but on average income over a long period. The use of these different income measures would not be a matter of major concern if the proportion of high- and low-lifetime incomes was distributed proportionately among annual-income classes. In fact, however, greater levels of lifetime income occur relative to annual income in the lower-annual-income classes. This occurs because the annual incomes of many retired families and temporarily poor families fall in the low-annual-income classes in survey data. Thus, the use of annual income injects a bias in the results toward a finding of regressivity, claim the critics.

While this argument is valid, it may be appropriate nevertheless to draw a distinction between property tax incidence from an economic perspective and property tax burden from a public policy perspective. From the public policy perspective it seems especially cruel to say to low-income retired families that their high property tax burdens are really quite small compared to their average-lifetime incomes or that if their property tax burdens relative to their current annual incomes are too high they should have been more prudent in the past in their housing purchases—or should sell out. Likewise, it does not seem humane to tell a family with a temporarily depressed income that their property tax burdens may ease up over the next few years. In short, while the use of lifetime incomes to measure the incidence of the property tax may be justified on economic grounds, especially for the purpose of measuring changes in the distribution of wealth caused by taxation, the use of annual income seems justified on public policy grounds, especially for the purpose of developing government policies to relieve inordinately high property tax burdens.[5]

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[5] The use of different income measures changes conclusions about housing consumption with respect to income. Most studies using annual income have found that housing expenditures as a percent of income decrease as income rises; such behavior results in a regressive pattern of incidence for property taxes on residential owned property. However, while the results are mixed, most studies using a lifetime income find that housing consumption is at least proportional to income and in most cases rises with income; such behavior produces a proportional or progressive pattern of incidence for the property tax on owner-occupied residential property. See, for example, Frank DeLeeuw, "The Demand for Housing: A Review of Cross Sectional Evidence," *Review of Economics and Statistics*, 53 (February 1971), pp. 1-11; Henry Aaron, *Shelter and Subsidies: Who Benefits from Federal Housing Policies?* (Washington, D.C.: The Brookings Institution, 1972), Appendix C; Geoffrey Carliner, "Income Elasticity of Housing Demand," *Review of Economics and Statistics*, 55 (November 1973), pp. 528-32; and Sherman Maisel, James Burnham and John Austin, "The Demand for Housing: A Comment," *Review of Economics and Statistics*, 53 (November 1971), pp. 410-12.

Shifting of property taxes on rental property. Most studies of property tax incidence based on the conventional viewpoint have assumed complete shifting of property taxes on rental structures. Such an extreme assumption probably was not justified. The degree of shifting of property taxes on rental structures depends on the economic circumstances surrounding the supply of and demand for rental housing.[6] A study of Boston indicated that landlords were not able to shift property tax increases to renters while a similar study in North Carolina found that substantial shifting had occurred.[7] Both studies have been criticized. But the general point remains: the degree of shifting of property taxes on rental residences probably has been overstated in the past. However, the degree of differential shifting depends primarily on property tax rate differentials within a locality. The uniform portion of the property tax on rental housing within a locality, that is, the lowest of the effective tax rates on all property, can be shifted almost entirely.

The New View of Property Tax Incidence

The new view of property tax incidence begins with an entirely different set of assumptions. The new view holds that the property tax is, at heart, a uniform tax on all property. As such, the tax is analyzed within a framework that focuses on the impact of property taxes on owners rather than users of capital.[8]

As noted previously, the new view treats the portion of the property tax on land as falling on landowners. While the new view looks at homeowners as owners of housing capital rather than users of it, the final results generally are the same from both the new and conventional points of view. The critical difference between the new and conventional views is in the treatment of the remaining portions of the property tax.

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[6] In economic terms, the degree of shifting hinges on the supply and demand elasticities of capital for rental housing. As the elasticity of supply rises and as the elasticity of demand falls, the potential for shifting increases. Of course, in the very short run the elasticity of supply is virtually zero and landlords bear the full burden of the tax. The elasticity of the supply of rental housing is disputed. Frank DeLeeuw and Nkanta Ekanem, found low elasticities of supply ("The Supply of Rental Housing," *American Economic Review*, 62 [December 1971], pp. 806-17). Ronald Grieson found higher elasticities ("The Supply of Rental Housing: Comment," *American Economic Review*, 63 [June 1973], pp. 433-36).

[7] Larry Orr, "The Incidence of Differential Property Taxes on Urban Housing," *National Tax Journal*, 21 (September 1968), pp. 253-62; and D. Hyman and E. Pasour, "Property Tax Differentials and Residential Rents in North Carolina," *National Tax Journal*, 26 (June 1973), pp. 303-7. Orr found a low-supply elasticity and a high-demand elasticity and thus little evidence of shifting. Hyman and Pasour found an elastic supply and an inelastic demand and strong evidence of shifting.

[8] In economic jargon, this tax is analyzed within a general equilibrium framework in which capital effects dominate the excise effects.

The new view proceeds in two steps. Assuming a fixed supply of capital, the first step considers the property tax as a uniform tax on all property. The burden of such a tax is borne by owners of all capital, taxable real property or otherwise. A simple example can illustrate this result. As property taxes are increased, capital owners will move capital out of areas subject to property taxation. This will reduce the supply, increase the price and thus decrease the consumption of goods and services produced by capital subject to the property tax. The shift of capital investment to areas not subject to the property tax will increase the supply of goods and services produced by this capital and thus decrease their prices. As the system comes to a new equilibrium, total consumption, it is assumed, remains the same for all goods and services and the net rate of return on investment in both sectors comes to a new level. The final effect is a decrease in the net rate of return on capital investment in both sectors. In the long run, a uniform property tax or a uniform property tax increase is assumed to be borne entirely by owners of all capital. Since the ownership of capital is proportionately higher for higher-income groups, the burden distribution of such a tax tends to be progressive in nature.

The second step in the new view recognizes the non-uniformity of the property tax that is caused by varying tax rates as well as varying administrative procedures across state and local governments. These differentials tend to reduce wages or increase rents and prices of goods and services in high-tax locations and conversely in low-tax locations. The precise nature of these excise effects is difficult to determine because they depend on the substitutability and mobility of capital and labor and the shifts in demand for goods and services subject to differential tax rates.[9] Adherents of the new view argue, however, that the central tendency resulting from the differentials will be in the direction of progressivity.[10]

A few studies of property tax incidence based just on step one of the new view have been conducted. Assuming that the entire burden of the property tax falls on owners of all capital, the results in Table 3 indicate that the property tax would be quite progressive for the upper-income brackets and proportional or just mildly regressive in the low-income brackets. Of course the results in Table 3 do not include the differentials included in step two of the analysis of incidence under the new view and thus reflect only a part of the incidence issue under the new view.

Clearly, the perspective of property tax incidence assumed, at least in its extreme form, produces different patterns of property tax burden

[9] See Peter Mieszkowski, "On the Theory of Tax Incidence," *Journal of Political Economy*, 75 (June 1967), pp. 250-62, and Charles McLure, "The Theory of Tax Incidence with Imperfect Factor Mobility," *Finanzarchiv*, 30:1 (1971), pp. 33-39.

[10] See Aaron, *Who Pays the Property Tax?*

distribution. Which perspective to assume is a difficult if not impossible choice to make at this time. Much additional research is needed to document the effect of the differentials in step two of the new view analysis, for example, as well as basic testing of the two conceptualizations.

However, another issue to consider in the selection of the particular view of property tax incidence is the nature of the policy question asked. If the incidence of the property tax is addressed from a national viewpoint, capital effects will dominate excise effects and the new view may be more appropriate. In addition, if a regressive burden distribution by income class persists to some extent regardless of theoretical perspective, the dilemma over choosing between the two, for policy-making purposes, will be resolved. The incidence of the property tax under alternative assumptions and the resultant patterns of burden distribution in four states are presented in the next section in an attempt to examine further if certain burden patterns persist regardless of incidence assumptions.

Table 3

Nationwide Property Tax Incidence Under the New View

Richard and Peggy Musgrave, 1968		Joseph Pechman and Benjamin Okner, 1966	
Family Income	Property Tax Burden	Family Income	Property Tax Burden
$4000-$5700	4.4%	Under $3000	2.5%
$12,500-$17,500	2.7	$3000-$5000	2.7
$35,500-$92,000	7.2	$5000-$10,000	2.0
Over $92,000	9.9	$10,000-$15,000	1.7
		$15,000-$20,000	2.0
		$20,000-$25,000	2.6
		$25,000-$30,000	3.7
		$30,000-$50,000	4.5
		$50,000-$100,000	6.2
		$100,000-$500,000	8.2
		$500,000-$1,000,000	9.6
		Over $1,000,000	10.1
		Average	3.0%

Source: Richard and Peggy Musgrave, *Public Finance in Theory and Practice*, 2nd ed. (New York: McGraw-Hill, 1976), p. 393; Joseph Pechman and Benjamin Okner, *Who Bears the Tax Burden?* (Washington, D.C.: The Brookings Institution, 1974), p. 59.

II. PROPERTY TAX INCIDENCE UNDER ALTERNATIVE ASSUMPTIONS IN FOUR STATES—CONNECTICUT, MINNESOTA, MISSOURI AND SOUTH DAKOTA

Recent examination of property tax burden distributions by income class under alternative assumptions of incidence in four states—Connecticut, Minnesota, Missouri and South Dakota—are presented below. The Connecticut study was conducted by Eapen and Eapen;[11] the authors of the present paper conducted the other three studies.

Each of the studies except for Minnesota utilized the broad census definition of money income. Each of the states except for Missouri allowed for the so-called "federal offset" where effective property tax rates are reduced for any given state due to the deductibility of property taxes in calculating federal taxable income. Since the federal income tax is progressive in rate structure, higher-income groups are aided relatively more by being able to deduct property taxes on owned residences. In other words, the federal offset tends to make the property tax effectively more regressive.

It is difficult to estimate comparable property tax rates among the four states since property assessment ratios of assessed to market value vary so much. Estimated effective property tax rates relative to market value of single-family homes in 1971 were 2.4 percent in Connecticut, 2.1 percent in Minnesota, 1.8 percent in Missouri and 2.7 percent in South Dakota.[12] Within property types there are differences in treatment. For example, South Dakota taxes agricultural property for education purposes at somewhat lower rates than nonagricultural property. Minnesota has an elaborate system of property classification that results in different effective rates of tax on different types of agricultural, business and residential property. In Connecticut and Missouri all classes of property legally are taxed on an essentially uniform basis.

Connecticut

The Connecticut study was based on data from fiscal year 1967. Real property was divided into six components and three different incidence assumptions were used. The first incidence assumption was that the tax was borne entirely by the consumer, consumers of housing for the residential portion and consumers of goods and services for

[11] A. Thomas Eapen and Ann N. Eapen, *Incidence of Taxes and Expenditures of Connecticut State and Local Governments, Fiscal Year 1967* (Hartford, Conn.: Connecticut State Revenue Task Force, 1970).

[12] Advisory Commission on Intergovernmental Relations, *Federal–State–Local Finances: Significant Features of Fiscal Federalism* (Washington, D.C.: U.S. Government Printing Office, 1974), p. 174.

the nonresidential portion. The second assumed that the tax was borne entirely by the owner, i.e., landlord or capital owner. The third assumption, a middle ground, allocated one-third of the tax to the owner and two-thirds to the consumer. Details on how the tax was allocated under each assumption are given in the Appendix.

The results of the Connecticut study are shown in Table 4 and Figure 1. The patterns in the data are clear. First, the pattern of incidence is essentially regressive under all the incidence assumptions. Second, regressivity exists over the entire range of income classes presented. If additional income brackets had been developed for income above $15,000, some progressivity probably would have been evidenced in at least columns 1 and 2 of Table 4. But even so, the results in the table indicate persistent regressivity for most families regardless of particular incidence assumptions.

In 1973 Connecticut adopted senior citizen "circuit breaker" property tax relief for lower-income homeowners and renters. For many lower-income households in this category, the property tax burden could be reduced compared with the estimates for 1967 in Table 4. But most low-income households, of course, are not helped by such age-restricted programs.

Table 4

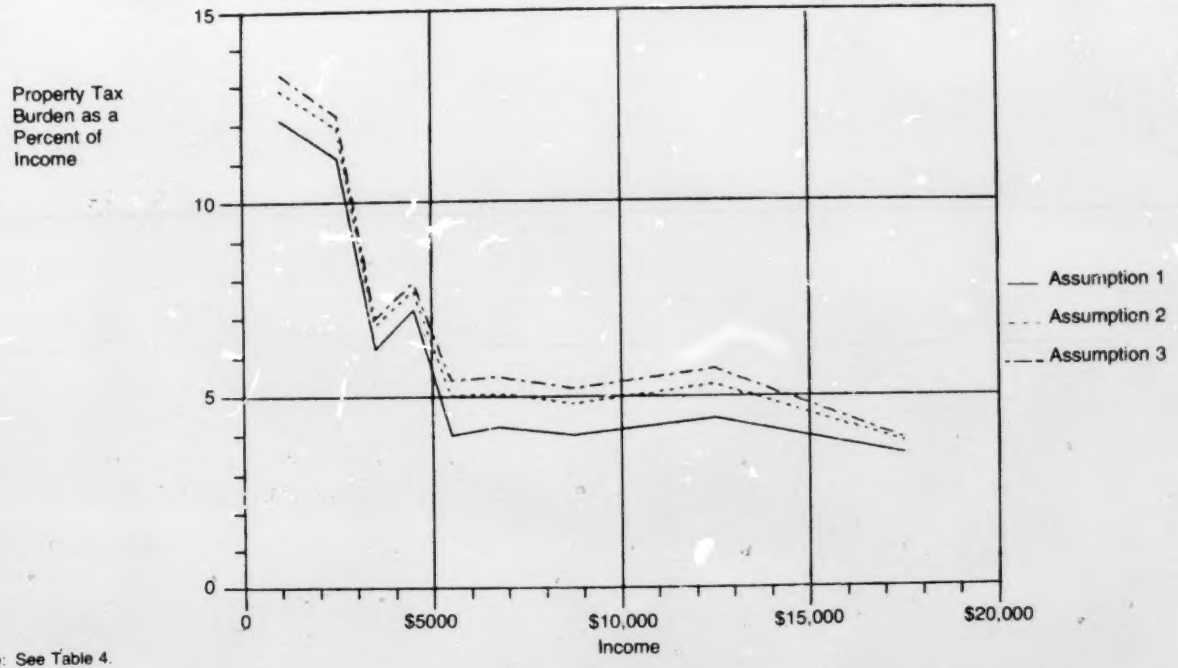
Property Tax Incidence in Connecticut, 1967, Under Alternative Assumptions

	Property Tax Burdens			
Family Census Income Class	(1) All on Owner	(2) One-third on Owner Two-thirds on Consumer	(3) All on Consumer	(4) Cumulative Percent of All Families
Under $2000	12.1%	12.9%	13.3%	9.7%
$2000-$3000	11.1	11.9	12.2	15.1
$3000-$4000	6.2	6.8	7.0	20.0
$4000-$5000	7.2	7.7	7.9	25.4
$50-0-$6000	4.0	5.0	5.4	31.7
$6000-$7500	4.2	5.1	5.5	43.3
$7500-$10,000	4.0	4.8	5.2	62.1
$10,000-$15,000	4.4	5.3	5.7	83.6
Over $15,000	3.5	3.8	3.9	100.0
Average	4.2%	4.8%	5.1%	

Source: A. Thomas Eapen and Ann N. Eapen, *Incidence of Taxes and Expenditures of Connecticut State and Local Government Fiscal Year 1967* (Hartford, Conn.: Connecticut State Revenue Task Force, 1970), p. 58.

Figure 1

Estimated Property Tax Burden in Connecticut, 1967, Under Alternative Assumptions



Source: See Table 4.

Minnesota

The Minnesota study was based on data for the 1971 fiscal year.[13] The property tax was divided into three components: residential-owned, residential-rented and nonresidential. Eight different incidence assumptions were used. Under assumption one, property taxes were assumed to fall only on owners of capital. Under the next seven assumptions the residential-owned component of the tax was assumed to fall on homeowners, and the residential-rented and nonresidential components were assumed to fall on tenants, owners of capital and consumers in varying proportions. Under assumption eight, complete forward shifting was assumed. Table 5 summarizes the incidence assumptions in the Minnesota study; details of the allocation procedure are given in the Appendix.

Table 5

Alternative Property Tax Incidence Assumptions in Minnesota

	Subgroup of Population Burdened by the Different Components of the Property Tax		
Assumption	Residential-Owned	Residential-Rented	Nonresidential
1	Owners of Capital	Owners of Capital	Owners of Capital
2	Homeowner	Owners of Capital	Owners of Capital
3	Homeowner	1/2 on Owners of Capital 1/2 on Tenant	Owners of Capital
4	Homeowner	Tenant	Owners of Capital
5	Homeowner	1/2 on Owners of Capital 1/2 on Tenant	1/2 on Owners of Capital 1/2 on Consumer
6	Homeowner	Tenant	1/2 on Owners of Capital 1/2 on Consumer
7	Homeowner	1/2 on Owners of Capital 1/2 on Tenant	Consumer
8	Homeowner	Tenant	Consumer

Source: Allan Odden, "The Incidence of the Property Tax Under Alternative Assumptions and the Effect of a Circuit Breaker" (Unpublished Ph.D. dissertation, Columbia University, 1975).

The Minnesota property tax burden as a percent of income under all eight assumptions is given in Table 6 and under assumptions one, five and eight is displayed in Figure 2. Three patterns are evidenced in the table. First—and foremost—the incidence pattern for incomes below $9000 is regressive for all eight incidence assumptions. Although the magnitudes of the tax burden for the lower-income classes

[13] Allan Odden, "The Incidence of the Property Tax Under Alternative Assumptions and the Effect of a Circuit Breaker" (Unpublished Ph.D. dissertation, Columbia University, 1975).

Table 6

Property Tax Burden Under Alternative Assumptions in Minnesota, 1971

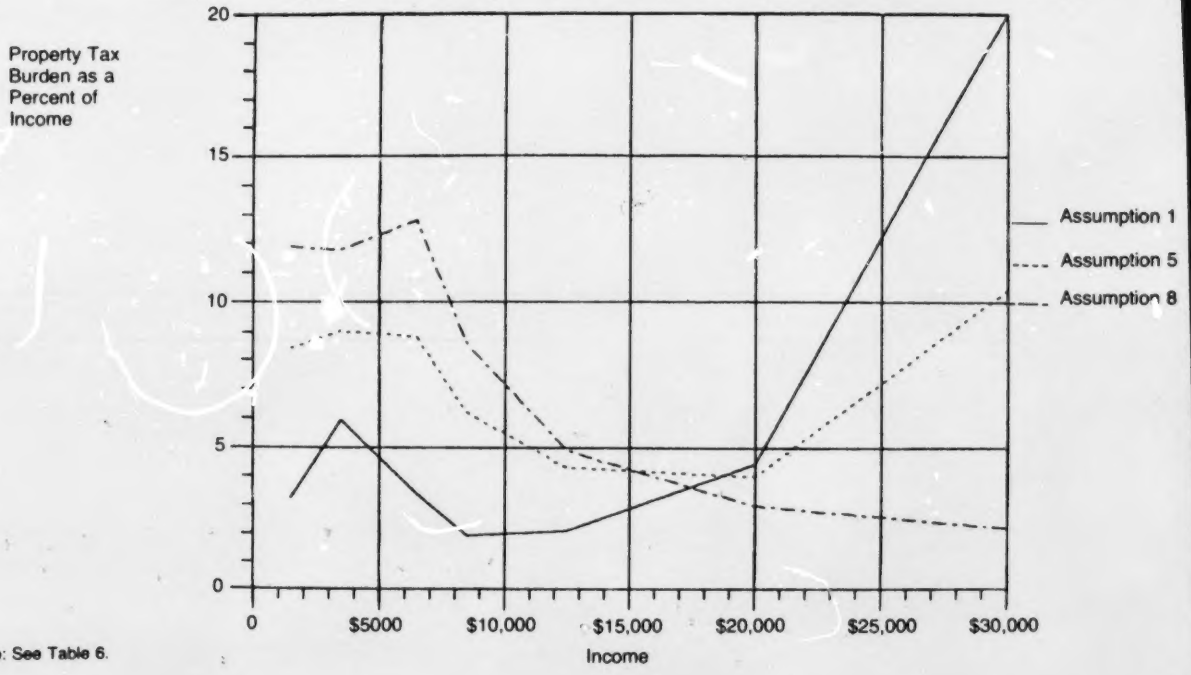
Income Class	Property Tax Burden as a Percent of Income by Incidence Assumption*							
	1	2	3	4	5	6	7	8
$1000-$1999	3.2	4.9	5.4	5.8	8.4	8.8	11.5	11.9
$3000-$3999	5.9	6.2	6.5	6.7	9.0	9.2	11.5	11.8
$6000-$6999	3.4	4.8	5.0	5.2	8.8	9.0	12.6	12.8
$8000-$8999	1.9	3.8	3.9	4.1	6.2	6.4	8.4	8.6
$10,000-$14,999	2.1	3.8	3.9	3.9	4.3	4.4	4.8	4.9
$15,000-$24,999	4.4	5.0	4.9	4.9	4.0	3.9	3.1	3.0
Over $25,000	26.3	18.5	17.8	17.1	10.4	9.7	2.9	2.2

*The income measure used to calculate the burden is an adjusted gross income figure plus government transfer income.

Source: Allan Odden, "The Incidence of the Property Tax Under Alternative Assumptions and the Effect of a Circuit Breaker" (Unpublished Ph.D. dissertion, Columbia University, 1975), Appendix D.

Figure 2

Estimated Property Tax Burden in Minnesota, 1971, Under Alternative Assumptions



Source: See Table 6.

increase from assumption one to assumption eight, the declining burden distribution pattern among the lower-income classes is fairly constant regardless of assumption.

In other words, a regressive burden distribution pattern for many families results for assumption one, the new view of the property tax; for assumption eight, which reflects full shifting under the conventional view; and for all intermediate situations. In short, for incomes below $15,000, Table 6 reveals persistent regressivity under all theoretical perspectives.

Although a regressive pattern for most sets of assumptions is expected, the existence of regressivity under assumption one may be surprising. However, capital assets are owned by large numbers of low-income senior citizens as well as persons with temporarily depressed incomes. Thus, the ratio of property ownership to income falls at first as level of income rises and then rises again as the middle- and upper-income groups are reached.

The second trend in Table 6 is that the property tax burden in the $15,000-$25,000 income range is nearly the same for all assumptions, between three and five percent. For those with incomes above $25,000, however, the tax burden varies greatly by incidence assumption with very high burdens resulting under assumptions closer to the new view and very low burdens resulting under assumptions closer to the conventional view. The results indicate no persistent trends over all incidence assumptions for property tax burdens in the higher-income categories.

As shown in Table 7, the regressive nature of the property tax is even

Table 7

Property Tax Burden on Homeowners of the Residential-Owned Component of the Minnesota Property Tax, 1968

Minnesota Gross Income Class	Property Tax Burden (Incidence on Homeowners)
Less than $1000	7.3%
$1000-$1999	3.4
$2000-$2999	2.9
$3000-$3999	2.7
$4000-$4999	2.5
$5000-$5999	2.4
$6000-$6999	2.3
$7000-$7999	2.2
$8000-$8999	1.9
$9000-$9999	1.8
$10,000-$14,999	1.1
$15,000-$24,999	1.1
Over $25,000	0.6

Source: Allan Odden, "The Incidence of the Property Tax Under Alternative Assumptions and the Effect of a Circuit Breaker" (Unpublished Ph.D. dissertation, Columbia University, 1975), p. 156.

more acute when just the residential-owned (homeowner) component of the tax is analyzed assuming incidence is on homeowners. Severe regressivity exists across all income ranges.

In 1967 Minnesota adopted a circuit-breaker program for low-income homeowners and renters aged 65 and over. For these persons, the property tax burden was reduced significantly but the overall regressive incidence of the tax was not changed. In 1975, however, Minnesota dropped the age-restriction of its circuit breaker program extending benefits to all low-income homeowners and renters. This expanded circuit breaker should reduce substantially the severity of the regressive burden of the tax.

Missouri

Table 8 and Figure 3 display the results for the Missouri study. The Missouri study was part of a school finance and tax policy analysis in that state. The data are for the 1974 fiscal year. The property tax was divided into the two components of land and nonland, and incidence was investigated under two extreme assumptions: that the property

Table 8

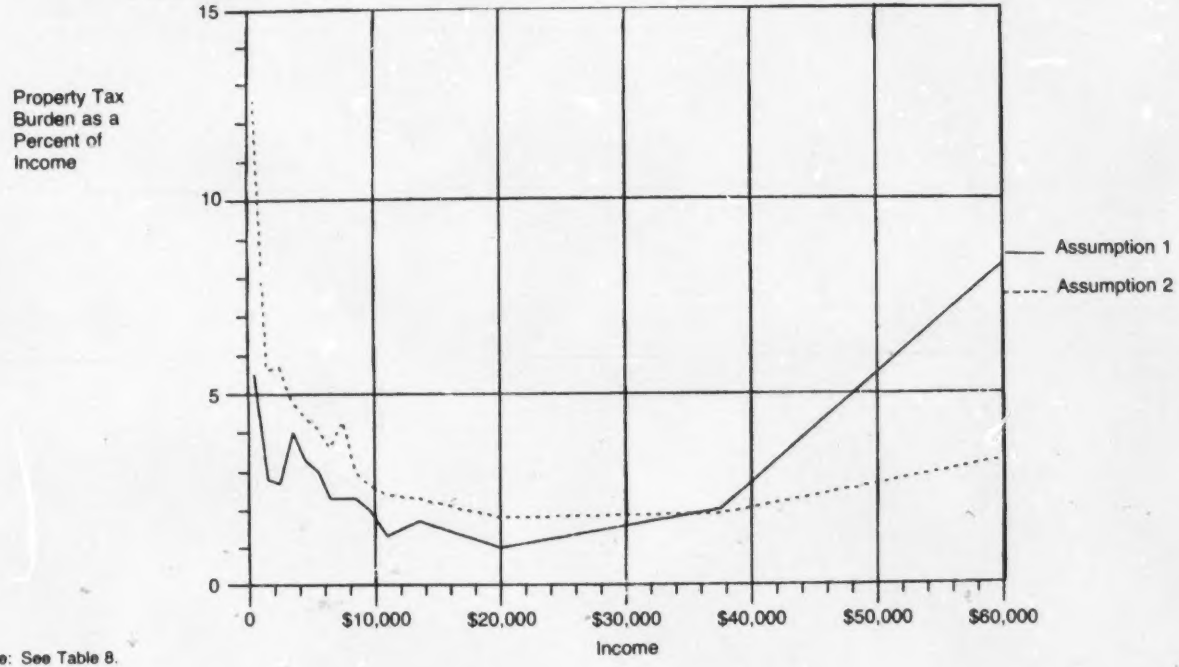
Property Tax Burden Distribution in Missouri, 1974, Under Alternative Assumptions

	Property Tax Burden		
Census Income	All on Capital Owners (Assumption 1)	All on Users (Assumption 2)	Cumulative Percent of Families and Individuals
Under $1000	5.5%	12.6%	4.9%
$1000-$2000	2.8	5.6	11.3
$2000-$3000	2.7	5.7	18.4
$3000-$4000	4.0	4.8	23.6
$4000-$5000	3.3	4.4	28.5
$5000-$6000	3.0	4.1	33.0
$6000-$7000	2.3	3.6	36.5
$7000-$8000	2.3	4.3	40.7
$8000-$9000	2.3	3.0	44.9
$9000-$10,000	2.0	2.7	49.0
$10,000-$12,000	1.3	2.4	57.4
$12,000-$15,000	1.7	2.3	69.0
$15,000-$25,000	1.0	1.8	89.1
$25,000-$50,000	2.0	1.9	97.9
Over $50,000	8.3	3.3	100.0
Average	2.4%	2.4%	

Source: Allan Odden and Philip E. Vincent, *Analysis of the School Finance and Tax Structure of Missouri: Background Research of the Educational Finance Committee of the Governor's Conference on Education* (Denver, Colo.: Education Commission of the States, 1976), pp. 192-193.

Figure 3

Estimated Property Tax Burden in Missouri, 1974, Under Alternative Assumptions



Source: See Table 8.

tax fell entirely on capital owners and that the property tax fell entirely on users, i.e., homeowners, renters and consumers.[14] The details of the allocation procedures are given in the Appendix.

In general, the results are similar to those for Connecticut and Minnesota. First, the property tax exhibits a regressive pattern of incidence under both assumptions, at least for the income classes that contain nearly 90 percent of the families and individuals in the state. The property tax under both assumptions is regressive for incomes up to around $20,000. Although the magnitude of the burden and the degree of regressivity are less under the assumption that the tax falls on capital owners, regressivity exists even under that extreme assumption.

As in Minnesota, the tax exhibits progressivity for the upper-income classes when the burden is assumed to fall on owners of capital. While the actual burden for particular individuals in the upper-income categories may be severe, the results in Table 8 do not take into account the deductibility of local property taxes in computing federal tax liability. The federal offset would reduce significantly the degree of progressivity indicated in the table.

The actual property tax incidence in Missouri is probably somewhere between these two extreme cases. But since regressivity persists for most families for both of these cases, one reasonably can be assured that the property tax places a regressive burden on the bulk of the taxpayers in Missouri.

South Dakota

The South Dakota study was also part of a school finance and tax study in that state.[15] The data again are for the 1974 fiscal year. Because of the importance of agriculture in South Dakota, a variety of incidence assumptions and allocations were developed to separate the property tax burden on farmers from the burden on nonfarmers. Detailed data on South Dakota property taxation were available. Three incidence assumptions were used as indicated in Table 9 and are discussed in more detail in the Appendix. The tax burdens by income class are presented in Table 10 and Figure 4.

Again, the results under all three incidence assumptions indicate a persistent pattern of regressivity. However, the regressivity under assumption one, the assumption closest to the new view, exists only for the lowest three income classes. Actually, the property tax burden

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[14] Allan Odden and Phillip E. Vincent, *Analysis of the School Finance and Tax Structure of Missouri: Background Research of the Educational Finance Committee of the Governor's Conference on Education* (Denver, Colo.: Education Commission of the States, 1976).

[15] Allan Odden and Phillip E. Vincent, *Report of the Task Force on School Finance of the South Dakota State Board of Education* (Denver, Colo.: Education Commission of the States, 1976).

Table 9

Alternative Property Tax Incidence Assumptions in South Dakota

Assumption 1—Most Progressive Case

All taxes on property income.

Assumption 2—Intermediate Case

Agricultural land taxes on farm income.
Agricultural nonland taxes on farm income.
Residential taxes on consumption.
Business land taxes on business income.
Business nonland taxes on consumption.

Assumption 3—Most Regressive Case

Agricultural land taxes on farm income.
Agricultural nonland taxes on consumption.
Residential taxes on consumption.
Business land taxes on business income.
Business nonland taxes on consumption.

Source: Allan Odden and Phillip E. Vincent, *Report of the Task Force on School Finance of the South Dakota State Board of Education* (Denver, Colo.: Education Commission of the States, 1976), Chapter 3 and Appendix C.

Table 10

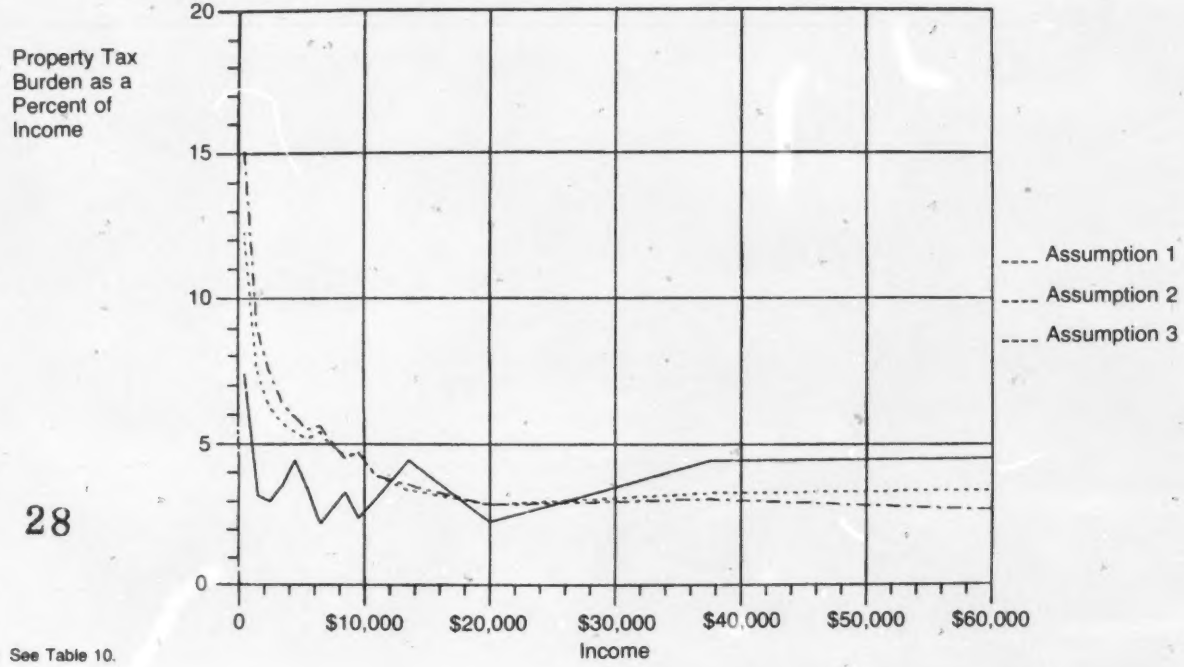
Property Tax Burden in South Dakota, 1974, Under Alternative Assumptions

Census Income	Property Tax Burden: Assumption 1	Assumption 2	Assumption 3	Cumulative Percent of Families and Individuals
Under $1000	7.4%	12.3%	15.1%	6.4%
$1000-$2000	3.2	7.5	9.0	13.0
$2000-$3000	3.0	6.3	7.5	19.9
$3000-$4000	3.6	5.7	6.4	25.7
$4000-$5000	4.4	5.4	5.9	31.0
$5000-$6000	3.4	5.2	5.5	35.6
$6000-$7000	2.2	5.4	5.6	40.1
$7000-$8000	2.8	4.9	5.0	44.3
$8000-$9000	3.3	4.6	4.5	48.5
$9000-$10,000	2.4	4.7	4.7	52.7
$10,000-$12,000	3.1	3.9	3.9	61.1
$12,000-$15,000	4.4	3.4	3.6	71.9
$15,000-$25,000	2.3	2.9	2.9	91.5
$25,000-$50,000	4.4	3.3	3.1	98.2
Over $50,000	4.5	3.4	2.7	100.0
Average	3.7%	3.7%	3.7%	

Source: Allan Odden and Phillip E. Vincent, *Report of the Task Force on School Finance of the South Dakota State Board of Education* (Denver, Colo.: Education Commission of the States, 1976), Chapter 3 and Appendix C.

Figure 4

Estimated Property Tax Burden in South Dakota, 1974, Under Alternative Assumptions



Source: See Table 10.

under assumption one seems to fluctuate between two and four percent across all income ranges, thus exhibiting, above the lowest three income classes, a proportional pattern of incidence.

But under assumptions two and three the pattern of regressivity is consistent and strong. Regressivity persists for incomes below $25,000 under assumption two and across all income classes under assumption three. In short, for all but the most extreme "new view" assumptions about shifting patterns of property taxes, including a separation of the farm and nonfarm property tax burden, the property tax in South Dakota places a regressive burden on persons with incomes below $25,000.

Relationship Between Tax Incidence and Revenue-Producing Potential

The policy implications of the incidence of the property tax can be considered entirely within the context of the equity of the tax. As the four state studies have shown, the property tax is regressive across the income classes that may include over 85 percent of a state's population.

But regressive taxes usually are inelastic tax sources. Revenues from regressive tax sources do not tend to keep up with a state's economic growth. Specifically, regressive tax sources tend to produce less than a one-percent increase in tax revenues as personal income in a state increases one percent. Since the demand for governmental services tends at least to keep pace with increases in personal income, annual debates over tax rate increases become nearly unavoidable if government expenditures are financed by regressive tax sources.

As part of the studies in Missouri and South Dakota, the elasticity of the property tax as well as its incidence were examined. As already mentioned, regressivity for many or most households was found regardless of incidence assumption. In addition, marked inelasticity also was found. In Missouri, it was found that a one-percent increase in personal income produced only a 0.5-percent increase in property tax revenues.[16] Similarly in South Dakota, a one-percent increase in personal income produced only a 0.4-percent increase in local property taxes.[17] Although the inelasticity of the property tax in both states was caused in part by poor and lagging assessment practices, it also was probably a reflection of the effective regressivity of the tax.

Thus, wholly apart from equity considerations, regressive tax sources, because they fail to produce increases in revenue commensu-

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[16] Allan Odden and Phillip E. Vincent, *Analysis of the School Finance and Tax Structure of Missouri.*

[17] Allan Odden and Phillip E. Vincent, *Report of the Task Force on School Finance of the South Dakota State Board of Education.*

rate with increases in personal income and demands for government services, result in annual debates over the need to increase tax rates of a tax system, if only to maintain service levels. Thus, reducing regressivity not only may appear more equitable to some, but also will produce a more responsive source of tax revenue.

III. CONCLUSIONS AND POLICY IMPLICATIONS

Recently a new view of property tax incidence has claimed that, contrary to conventional wisdom, the property tax imposes a progressive burden. This booklet has summarized briefly the theoretical issues of property tax incidence under both the conventional and new views. In addition, the results of research on property tax burden distributions under alternative assumptions in four states—Connecticut, Minnesota, Missouri and South Dakota—were summarized.

The results of the four state studies are clear. The property tax exhibits a regressive to proportional pattern of incidence regardless of incidence assumption for income ranges that include a majority of families and individuals, at least those with incomes below $15,000. In short, the research reported in this article tends to contradict the new claims of property tax progressivity for most families by showing that regressivity may persist even under the extreme posture of the new view. The major case where rough proportionality may hold under the furtherest extreme of the new view is in a highly agricultural state.

However, since neither the extreme assumptions of the new nor the conventional view probably hold in the real world, the incidence of the property tax is probably somewhere between the two. The results reported in these studies show that for reasonable middle-range assumptions of incidence, under which a substantial share of the property tax is allocated to capital owners as well as consumers, the property tax produces marked regressivity for incomes below $15,000. In short, the property tax probably is a regressive tax for families with incomes below the median level.

These results suggest that the actions taken by state legislatures over the past few years in enacting property tax relief programs to reduce regressivity are in fact desirable if the goal is to reduce actual regressivity that persists for low-income households. Each of the four states examined in detail above has some form of property tax circuit breaker currently in operation, although most still are oriented only to the elderly poor.

As of 1973 the Connecticut program could reduce a very low-income, aged household's property taxes by as much as $500, which would reduce regressivity indicated in Table 4 and Figure 1 to some extent. The existing senior citizen circuit breaker program in Missouri was taken into account in the analysis presented above; the basic regres-

sivity clearly has not been overcome because of the limited coverage and level of the program. South Dakota only recently has added a property tax circuit breaker program for the elderly and handicapped to its existing sales tax refund program for these groups. The South Dakota program likely will have but a small effect on property tax regressivity, due to its limited nature.

In the Minnesota case, the research summarized had as a major focus the impact of the circuit breaker as it existed in 1971. Again, since the program covered only the elderly and handicapped, it did not eliminate overall regressivity.[18] In 1973, Minnesota removed the age restriction in its circuit breaker thus making all low-income families eligible for circuit breaker property tax relief. This expanded circuit breaker should reduce substantially, if not eliminate, the regressive incidence of the property tax in that state.

Overall, further research needs to be done on the detailed impact to date and potential further impact of increased emphasis on the circuit breaker approach across the U.S. Circuit breaker property tax relief programs, even those of the senior citizen variety, dramatically reduce property tax burdens for the recipient population.[19] But, as was found in Minnesota, senior citizen circuit breakers have a minimal effect on overall regressivity. Expanded circuit breakers, such as those that now exist in Michigan, Minnesota, Oregon, Vermont and Wisconsin, that aid all low-income families regardless of age should have a major impact on reducing overall regressivity.[20] The results of these programs should be researched further when the data become available.

Because of the ways in which the property tax is administered and used in the United States, it often is inequitable among different households with the same residence values or incomes in a given local jurisdiction. This "horizontal inequity," exists independently of issues of appropriate incidence assumption or attitudes toward appropriate degrees of regressivity or progressivity of taxes. Administrative reform in improving equality of assessment within and among jurisdictions progresses slowly. For example, taking one of the above states, Missouri currently faces a painful debate over how to make up for years of poorly administered property taxes; better property tax administration also is seen by some as critical to making any real

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[18] Allan Odden, "The Incidence of the Property Tax Under Alternative Assumptions and the Effect of a Circuit Breaker," Appendix D.

[19] Allan Odden, "Circuit Breaker Techniques for the Property Tax," in *Rethinking Educational Financing*, ed. James A. Kelly (San Francisco, Calif.: Jossey-Bass, Inc., 1973), p. 46.

[20] Advisory Commission on Intergovernmental Relations, *Property Tax Circuit-Breakers: Current Status and Policy Issues* (Washington, D.C.: Advisory Commission on Intergovernmental Relations, 1975), pp. 5 and 24.

changes in the allocation of state education aid based on property wealth per pupil. That property tax administration has enhanced regressivity is illustrated by findings that lower-valued houses are assessed at higher percentages of market value than higher-valued houses. For example, Oldman and Aaron found that in Boston assessment-sales value ratios ranged from 0.28 in the richer areas to 0.59 in poorer areas.[21] A major element of "better administration" is reduction of such disparities that by themselves enhance the degree of regressivity, debates over incidence assumptions aside.

School finance reforms that reduce the absolute dependence of school expenditures on local property tax bases will reduce the burden of the property tax on lower-income households, as well as higher-income households. However, unless property wealth per pupil and average household income in school districts are correlated strongly, there will not be a systematic reduction in property tax burdens for all low-income households from reforms that help low-wealth districts. Lack of strong correlation has been found in some states. If uniform property tax reduction is financed out of a progressive state income tax structure, however, the net result will be a reduction in the overall degree of regressivity of the school finance system, an important reason why school finance reform and state tax reform should be linked.

Until school finance reforms are implemented, however, state financial programs to reduce property tax regressivity, such as circuit breaker programs of property tax relief, will be needed to achieve the goals of reducing the regressivity and inelasticity problems of state and local school finance systems.

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[21] Oliver Oldman and Henry Aaron, "Assessment-Sales Ratios Under the Boston Property Tax," *National Tax Journal*, 18 (March 1965) pp. 36-39; see also David Black, "The Nature and Extent of Effective Property Tax Rate Variation Within the City of Boston," *National Tax Journal*, 25 (June 1972), pp. 203-210.

APPENDIX

This appendix discusses the details of how the various components of the property tax were allocated among income classes according to the different incidence assumptions in the four state studies.

Connecticut

The property tax was divided into six components and allocated as follows:

Residential—single family. It was assumed that all of this property was owner occupied. It was allocated by the percent distribution among income classes of the value of owner-occupied houses in the Northeastern states for 1967.

Residential—multiple family. It was assumed that all of this property was rented. One-half was assumed to be owned by incorporated businesses and one-half by unincorporated businesses. When borne by the tenant, it was allocated by the distribution of rental payments by families in the Northeast. When borne by the landlord, it was allocated by the distribution of dividends received in the case of incorporated landlords and the distribution of rental income in the case of unincorporated owners.

Acreage and farms. When assumed to fall on consumers, it was allocated by the distribution of food consumption. When assumed to fall on farmers, it was allocated by the distribution of farm income.

Vacant lots. It was assumed that the tax fell on owners and was allocated according to the distribution of family income in Connecticut.

Commercial. It was assumed that one-half the tax was paid by incorporated and one-half by unincorporated establishments. When borne by consumers, it was allocated on the basis of the distribution of aggregate consumption expenditures. When borne by owners, it was allocated on the basis of the distribution of dividend income in the case of incorporated owners and on the basis of the distribution of business and partnership income in the case of unincorporated owners.

Industrial. It was assumed that two-thirds was paid by incorporated and one-third by unincorporated establishments. The allocation was similar to that for commercial property except that 80 percent of taxes on incorporated firms was assumed to be exported.

Minnesota

Four property tax allocators were used in the Minnesota study. The allocators were as follows:

The percent distribution of capital income. When any portion of the property tax was assumed to fall on capital owners, the tax was allocated on the basis of the nationwide distribution of capital income.

The percent distribution of residential-owned property taxes. That portion of the property tax assumed to fall on homeowners was distributed according to the distribution of property taxes actually paid by Minnesota homeowners according to a recent study in that state.

The percent distribution of residential-rented property taxes. That portion of property taxes assumed to fall on tenants was allocated on the basis of the distribution of rental payments by families in the Midwest.

The percent distribution of consumer expenditures. That portion of property taxes on nonresidential structures assumed to be shifted to consumers was distributed on the basis of total consumer expenditures.

Missouri

Three tax allocators were used as follows:

Capital income distribution. Federal tax data for Missouri on the distribution of property income was utilized for that portion of the tax assumed to fall on capital owners.

Housing expenditures distribution. Housing expenditures by income class were used to allocate residential taxes where appropriate.

Consumption expenditures distribution. Where certain business and farm nonland taxes were assumed to be shifted forward, consumer expenditure patterns were utilized.

South Dakota

Agricultural land. The taxes were distributed by farm income or property income.

Agricultural improvements. The taxes were distributed by total consumption, farm income, or property income, where appropriate.

Residential. The taxes were distributed by housing consumption or property income.

Business land. The taxes were distributed by business income.

Business improvements. The taxes were distributed by consumption or property income.

Education Commission of the States

The Education Commission of the States is a nonprofit organization formed by interstate compact in 1966. Forty-five states, Puerto Rico and the Virgin Islands are now members. Its goal is to further a working relationship among governors, state legislators and educators for the improvement of education. This report is an outcome of one of many Commission undertakings at all levels of education. The Commission offices are located at 300 Lincoln Tower, 1860 Lincoln Street, Denver, Colorado 80203.